Claims

1. A method for identification and speciation of bacteria of the *Burkholderia cepacia* complex in a sample, comprising the steps of

(a) obtaining nucleotide sequence information for the recA gene in bacteria of the *Burkholderia cepacia* complex found in the sample; and

(b) comparing the nucleotide sequence information obtained for the recA gene in bacteria of the *Burkholderia cepacia* complex found in the sample with a standard library of nucleotide sequence information comprising standard nucleotide sequence information for at least three species of bacteria of the *Burkholderia cepacia* complex.

2. The method of claim 1, wherein the nucleotide sequence information for bacteria of the *Burkholderia cepacia* complex in the sample and in the standard library are obtained by evaluation of restriction fragment length polymorphism.

3. The method of claim 2, wherein the restriction fragment polymorphism is carried out using the restriction enzyme *HaeIII* or *AluI*.

4. The method of ~~any of claims 1 to 3~~ claim 1, wherein the recA gene in the bacteria of the *Burkholderia cepacia* complex in the sample is amplified relative to other nucleic acid polymers in the sample prior to obtaining the nucleotide sequence information.

5. The method of claim 4, wherein the recA gene is amplified using PCR amplification.

6. The method of claim 5, wherein the PCR amplification is carried out using the following primers:

Forward Primer
TGACCGCCGAGAAGAGCAA SEQ ID No. 3
Reverse Primer

CTCTTCTTCGTCCATCGCCTC. SEQ ID No. 4

7. The method of claim 5, wherein the PCR amplification is carried out using the following primers:

Forward Primer
TGCGGATGGGCGACGGCG SEQ ID No. 20

Reverse Primer
CAGTTCTGTCGCTTGATCG. SEQ ID No. 21

8. A composition comprising a pair of polynucleotide primers for production of a diagnostic amplicon from the recA gene of bacteria that is a member of the *Burkholderia cepacia* complex, said pair of primers hybridizing with each of the polynucleotides whose sequences are given by Seq. ID. Nos. 1, 2 and 5-19 to produce as an amplification product a diagnostic amplicon which can provide diagnostic information concerning the member of Burkholderia cepacia complex.

9. The composition of claim 8, wherein the polynucleotide primers have the sequences:

Forward Primer
TGACCGCCGAGAAGAGCAA SEQ ID No. 3

Reverse Primer
CTCTTCTTCGTCCATCGCCTC. SEQ ID No. 4

10. The composition of claim 8, wherein the polynucleotide primers have the sequence:

Forward Primer
TGCGGATGGGCGACGGCG SEQ ID No. 20

Reverse Primer
CAGTTCTGTCGCTTGATCG. SEQ ID No. 21

11. A kit for speciation of bacteria of the *Burkholderia cepacia* complex, comprising, in packaged combination, a pair of polynucleotide primers in accordance with claim 8 ~~any of claims 8 - 10~~, and a discriminatory restriction endonuclease.

12. The kit of claim 11, wherein the restriction endonuclease is *HaeIII* or *AluI*.

13. A composition comprising a genomovar-specific primer pair effective under stringent PCR conditions to produce amplification products by amplification of at least a portion of the *recA* gene of bacteria belonging to one genomovar of the *B. cepacia* complex, but not to produce amplification products from bacteria belonging to other genomovars.

14. The composition according to claim 13, wherein the genomovar-specific primer pairs are selected from among the following primer pairs given by Seq ID Nos.: 23 and 24, 25 and 26, 27 and 28, 29 and 30, 31 and 32, or 33 and 34.

15. A kit for speciation of bacteria of the *Burkholderia cepacia* complex, comprising, in packaged combination, a pair of genomovar-specific polynucleotide primers in accordance with claim 13 ~~claims 13 or 14~~ and a discriminatory restriction endonuclease.

16. The kit of claim 15, wherein the restriction endonuclease is *HaeIII* or *AluI*.

17. A vaccine composition for treatment and prevention of infection with bacteria of the *Burkholderia cepacia* complex, wherein the bacteria is a member of genomovar III and has a nucleotide sequence for the recA gene which produces a G-type RFLP pattern when analyzed with the restriction enzyme HaeIII, and wherein the vaccine composition comprises flagellin or a flagellin-derived antigen or a polynucleotide encoding flagellin or a flagellin-derived antigen, said flagellin or flagellin-derived antigen being obtained from the bacteria that is a member of genomovar III and that has a nucleotide sequence for the recA gene which produces a G-type RFLP pattern when analyzed with the restriction enzyme HaeIII.

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